

(12) United States Patent

Forstall

US 9,208,748 B2 (10) **Patent No.:**

(45) **Date of Patent:** *Dec. 8, 2015

(54) SINGLE USER INPUT MECHANISM FOR CONTROLLING ELECTRONIC DEVICE **OPERATIONS**

(71) Applicant: **Apple Inc.**, Cupertino, CA (US)

Inventor: Scott J. Forstall, Mountain View, CA

(US)

Assignee: APPLE INC., Cupertino, CA (US)

Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35 U.S.C. 154(b) by 81 days.

This patent is subject to a terminal dis-

Appl. No.: 14/076,506 (21)

Filed: Nov. 11, 2013 (22)

(65)**Prior Publication Data**

US 2014/0062869 A1 Mar. 6, 2014

Related U.S. Application Data

- Continuation of application No. 13/608,746, filed on Sep. 10, 2012, now abandoned, which is a continuation of application No. 12/115,774, filed on May 6, 2008, now Pat. No. 8,265,709.
- Provisional application No. 60/936,965, filed on Jun. 22, 2007.
- (51)Int. Cl. H04M 1/00 (2006.01)G09G 5/00 (2006.01)G06F 3/038 (2013.01)G06F 3/02 (2006.01)
- (52)U.S. Cl. CPC G09G 5/006 (2013.01); G06F 3/0227 (2013.01); **G06F** 3/038 (2013.01)

Field of Classification Search (58)USPC 455/550.1, 556.1, 557, 575.2, 41.2, 455/66.1, 569.1

See application file for complete search history.

(56)References Cited

U.S. PATENT DOCUMENTS

7,433,717	B2	10/2008	Wang et al.
8,265,709	B2 *	9/2012	Forstall 455/569.1
2005/0277438	A1	12/2005	Tilk et al.
2006/0040638	A1	2/2006	McQuaide, Jr.
2007/0041582	A1	2/2007	Lam
2007/0129046	A1	6/2007	Soh et al.
2007/0142047	A1	6/2007	Heeschen et al.
2007/0157118	A1	7/2007	Wuttke
2008/0039072	A1	2/2008	Bloebaum
2008/0045280	A1	2/2008	Hawkins et al.
2008/0164934	A1	7/2008	Hankey et al.
2008/0165986	A1	7/2008	Daniels et al.
(Continued)			

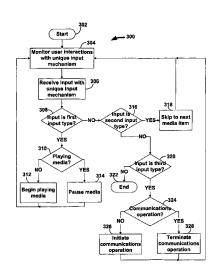
Primary Examiner — Nguyen Vo

(74) Attorney, Agent, or Firm — Van Court & Aldridge LLP

(57)ABSTRACT

A unique input mechanism for controlling several operations of an electronic device is provided. Using the unique input mechanism, which may be the single input mechanism for providing user inputs to the electronic device, a user may provide different inputs or combinations of inputs to control different operations based on the current mode or capacity of the electronic device. For example, a single, short click of a button may control a media operation (e.g., play/pause) in a media mode, and the same input may control a telephony operation (e.g., initiate/terminate call) in a telephony mode. In some embodiments, different inputs may be associated with different types of operations. The unique input mechanism may include, for example, a button, a switch, a key, or an actuator.

21 Claims, 3 Drawing Sheets



US 9,208,748 B2 Page 2

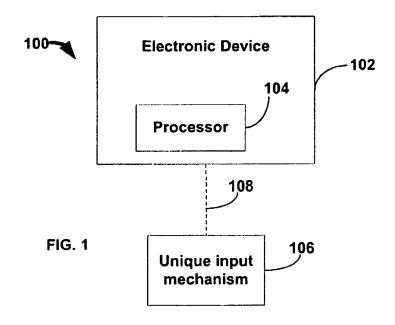
(56) **References Cited**

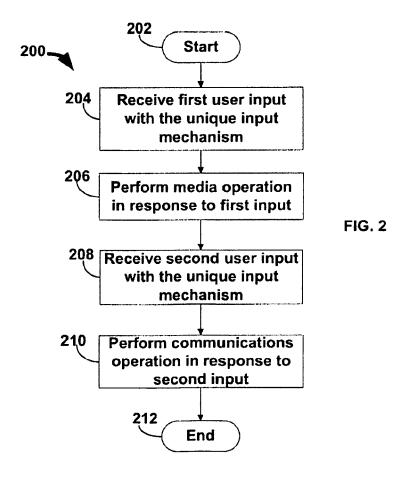
2008/0242378 A1 10/2008 Lowles et al. 2010/0120366 A1 5/2010 Debiasio et al.

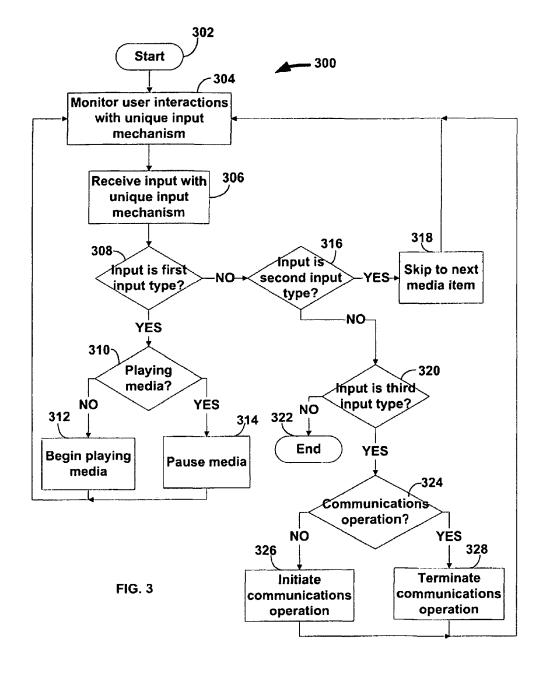
U.S. PATENT DOCUMENTS

7/2008 Hankey et al. 2008/0166003 A1

* cited by examiner









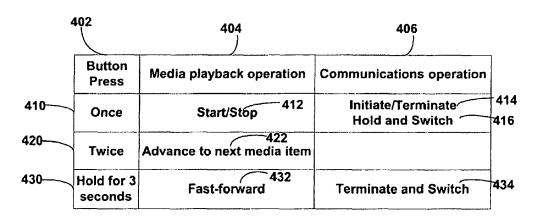


FIG. 4

SINGLE USER INPUT MECHANISM FOR CONTROLLING ELECTRONIC DEVICE **OPERATIONS**

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 13/608,746, filed Sep. 10, 2012, which is a continuation of U.S. patent application Ser. No. 12/115,774, 10 filed May 6, 2008, which claims the benefit of U.S. Provisional Patent Application No. 60/936,965, filed Jun. 22, 2007, each of which is incorporated herein its entirety.

BACKGROUND OF THE INVENTION

This invention is directed to a single user input mechanism for controlling the operations of an electronic device.

Some existing electronic devices can be controlled using several input mechanisms. For example, some personal 20 media players, such as the iPod, include a scrolling mechanism and one or more buttons (e.g., a click-wheel) for controlling operations of the media player. As another example, some communications devices such as cellular telephones, may include several keys for dialing telephone numbers, ini- 25 tiating calls, and ending calls.

Typically, the input mechanism of an existing electronic device may be operative to control several device operations. In some embodiments, the electronic device may be coupled with a remote input device that includes, for example, one 30 input mechanism for controlling a single electronic device operation (e.g., a rotary dial for controlling the volume of a personal electronic device), or a small number of input mechanisms (e.g., two or three buttons) for controlling a small number of electronic device operations (e.g., one button 35 of the invention. for play/pause, and one button for next). Because each of the input mechanisms controls only a single electronic device operation, the many input mechanisms may be bulky, expensive, and complex to create and to use.

input mechanism by which a user may control several electronic device operations. It would also be desirable to provide a unique input mechanism by which a user can control many diverse, and unrelated electronic device operations.

SUMMARY OF THE INVENTION

A unique input mechanism by which a user may control several operations of an electronic device is provided.

The unique input mechanism may be coupled to the elec- 50 tronic device in any suitable manner. For example, the unique input mechanism may be incorporated in the electronic device. As another example, the unique input mechanism may be remote to the electronic device (e.g., coupled wirelessly or by a cable). The remote unique input mechanism may be 55 incorporated in any suitable device such as, for example, a remote user input device (e.g., a remote controller), a communications device or accessory (e.g., a headset), or another electronic device.

The unique input mechanism may include any suitable 60 single input mechanism that causes different operations to be executed in response to different interface events on the single input mechanism. For example, the unique input mechanism may include one of a button, a key, a switch and an actuator. The user may actuate the unique input mechanism in one of 65 several manners. For example, the user may actuate the input mechanism for different lengths of time (e.g., a short press of

2

a button or a 3-second long press of a button). As another example, the user may actuate the input mechanism using different sequences (e.g., a single press of a button or two presses of a button).

The electronic device may be operative to perform different operations in response to different inputs received from the unique input mechanism. For example, in response to a first input received from the unique input mechanism (e.g., a single press of a button), the electronic device may perform a media operation (e.g., play/pause media). As another example, in response to a second input received from the unique input mechanism, the electronic device may perform a communications operation (e.g., pick-up an incoming call, initiate a voice-activated call, or terminate a call).

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other features of the present invention, its nature and various advantages will be more apparent upon consideration of the following detailed description, taken in conjunction with the accompanying drawings in which:

FIG. 1 shows a schematic view of an illustrative system that includes a unique input mechanism in accordance with one embodiment of the invention;

FIG. 2 shows a flow chart of an illustrative process for controlling media operations and communications operations in accordance with one embodiment of the invention;

FIG. 3 shows a flowchart of an illustrative process for interacting with an electronic device using a unique input mechanism in accordance with one embodiment of the invention; and

FIG. 4 shows a chart of illustrative associations of inputs provided using a single input mechanism and corresponding electronic device actions in accordance with one embodiment

DETAILED DESCRIPTION

FIG. 1 shows a schematic view of an illustrative system that It would be desirable, therefore, to provide a single, unique 40 includes a unique input mechanism in accordance with one embodiment of the invention. System 100 may include electronic device 102. Electronic device 102 may be any electronic device that includes at least two operations that a user may control. Suitable electronic devices may include, for 45 example, a computer, a cellular telephone, a mobile communications device, a personal media device, a set-top box, a television system, combinations thereof (e.g., the iPhone) or any other suitable electronic device.

The operations may be any suitable operations available using the particular electronic device. For example, if the electronic device is a personal media player, the operations may include, for example, at least two of play/pause, next, fast-forward, last, stop, volume up, volume down, or any other media playback operation. As another example, if the electronic device is a cellular telephone, the operations may include, for example, at least two of dial, connect, hang-up, hold, switch, mute, volume up, volume down, or any other telephony or communications operation. In yet another example, in a hybrid device having both media player and telephone functionality, the operations may include at least two of play/pause, next, last, stop, fast-forward, volume up, volume down, dial, connect, hang-up, hold, switch, mute, or any other media application, telephony or communications operation. Other operations that may be performed include, for example, a select operation and a menu access button.

Electronic device 102 may include control circuitry or processor 104 for performing the operations of electronic

device 102. Processor 104 may be coupled to any other suitable component of electronic device 102. For example, processor 104 may be coupled to memory, a storage device, communications circuitry, a display, audio circuitry, a bus, an I/O component, or any other suitable component.

System 100 may include unique input mechanism 106 for providing user inputs to electronic device 102. Unique input mechanism 106 may be a single input mechanism operative to provide a signal to electronic device 102 in response to a user actuation of unique input mechanism 106. In some embodiments, unique input mechanism 106 may provide different signals based on the user's input (e.g., depending on the position of the button forming unique input mechanism 106). For example, electronic device 102 may receive and process a 0 or 1 signal, or identify the presence or absence of an 15 electric signal.

In some embodiments, system 100 may include several unique input mechanisms 106 (e.g., several distinct buttons). For the purposes of this invention, it will be understood that in such a system, one of the several unique input mechanisms 20 106 may be used to receive different interface events to perform communications and media operations.

Unique input mechanism 106 may include any suitable button, key, actuator, switch, or other mechanism that pronism 106 may include a bend switch, as described in U.S. Publication No. 2008/0165986, which is incorporated by reference herein in its entirety. As another example, unique input mechanism 106 may include an in-line switch, as described in U.S. Provisional Patent Application No. 60/879,155, filed 30 Jan. 6, 2007, which is hereby incorporated by reference herein in its entirety.

Unique input mechanism 106 may be incorporated in a user input device (not shown) for controlling several operations of one or more electronic devices. For example, the user 35 input device may be a remote control (e.g., a universal remote) coupled with one or more electronic devices (e.g., coupled with a television, a set-top box, a recording device, and a media player). In some embodiments, the user input device may include only the unique input mechanism. For 40 example, the user input device may include a single button for controlling operations of electronic device 102. In some embodiments, the single button may be a dome switch.

In some embodiments, unique input mechanism 106 may be incorporated in a device that communicates (e.g., using 45 wires or wirelessly) with electronic device 102. For example, if electronic device 102 includes cellular telephone capabilities, unique input mechanism 106 may be incorporated in a wireless headset (e.g., a Bluetooth headset). One suitable Bluetooth headset is described in U.S. Provisional Patent 50 Application No. 60/879,177, filed Jan. 6, 2007, U.S. Provisional Patent Application No. 60/879,195, filed Jan. 6, 2007, and U.S. Provisional Patent Application No. 60/879,193, filed Jan. 6, 2007, each of which is incorporated by reference herein in its entirety.

Unique input mechanism 106 may be coupled to electronic device 102 using communications link 108. Communications link 108 may be any suitable wired or wireless link. For example, communications link 108 may be a wire (e.g., a headset wire), a cable (e.g., a fiber optic cable), or a wireless 60 path created using a suitable wireless communications protocol. Suitable wireless communications protocols may include, for example, Wi-Fi communications (e.g., one of the 802.11 standards), Bluetooth, Nordic, high frequency systems (e.g., 900 MHz, 2.4 GHz, and 5.6 GHz communication 65 systems), short-range radio circuitry (e.g., walkie-talkie type circuitry), and infrared protocols.

In some embodiments, electronic device 102 may include a user input interface that includes one or more input mechanisms for controlling operations of the electronic device. In such embodiments, unique input mechanism 106 may be distinct from electronic device 102 (e.g., incorporated in a distinct device or user input device) such that unique input mechanism 106 is the only mechanism local to the device in which the mechanism is incorporated that may be operative to control several operations of electronic device 102. Thus, the user may perform different combinations of inputs (as described below in more detail) using unique input mechanism 106 to control several operations of electronic device 102.

In some embodiments, unique input mechanism 106 may be incorporated within electronic device 102 such that unique input mechanism 106 may be the only mechanism within electronic device 102 for controlling the operation of the electronic device. This approach may be used, for example, to provide rudimentary or basic operations control for an electronic device that is primarily controlled using a remote user input device (e.g., a television system that includes a single button on the television, where the television system is controlled using a remote control).

The following flow charts describe various operations of an vides at least two states. For example, unique input mecha- 25 electronic device that a user may control using a unique input mechanism. FIG. 2 shows a flow chart of an illustrative process for controlling media operations and communications operations in accordance with one embodiment of the invention. Process 200 begins at step 202. At step 204, a first user input with the unique input mechanism may be received. For example, the electronic device (e.g., electronic device 102, FIG. 1) coupled with the unique input mechanism (e.g., unique input mechanism 106, FIG. 1) may detect a first user input with the unique user input mechanism. The first user input may be a change in the state of unique input mechanism 106 (e.g., pressing a button) that causes a signal to be received by electronic device 102. In some embodiments, the first user input may be a sequence of changes in state of unique input mechanism 106 (e.g., 2 pushes of a button, or an extended push of a button) that causes a sequence of signals or a specific signal to be received by electronic device 102.

> At step 206, the electronic device may perform a media operation in response to the first input received at step 204. For example, electronic device 102 may start, stop or pause media available with the electronic device (e.g., start, stop or pause audio provided to a headset coupled to a media player). As another example, the electronic device may skip to the next or previous media item, fast-forward or rewind a media item available for playback, change the volume, load a playlist, modify a playlist, shuffle or un-shuffle the playlist, or any other suitable operation.

At step 208, a second user input with the unique input mechanism may be received. For example, electronic device 102 may receive a second input from unique input mechanism 55 106. The second input may be a change in state of unique input mechanism 106, or a sequence of changes in state of unique input mechanism 106. In some embodiments, the second user input may be different from the first user input. For example, the second user input may be a different change of state or sequence of changes of state of unique input mechanism 106 (e.g., one quick push of a button as opposed to a 3-second push of a button, or as opposed to two pushes of a button). Electronic device 102 may identify the different second input based on a signal received by the electronic device from unique input mechanism 106. For example, if the first input is a single push of a button, electronic device 102 may receive a single, short signal from unique input mecha-

nism 106. If the second input is a three-second long push of a button, electronic device 102 may receive a single, longer signal from unique input mechanism 106 (e.g., a 3-second long signal).

At step 210, the electronic device may perform a communications operation in response to the second user input. For example, electronic device 102 may initiate or terminate a call, hold a call, switch between calls, mute audio, connect to or disconnect from a network (e.g., for Internet access), dial a number, initiate a voice-activated or voice-controlled call, 10 decline a call, switch to another call, place a call on hold or any other suitable communications operation. In some embodiments, the communications operation may be any operation that may be performed by a cellular telephone or a mobile communications device. Process 200 then ends at step 15

In some embodiments, the first and second inputs received at steps 204 and 208 may be the same (e.g., a single press of a button). Depending on the mode or capacity of the electronic device (e.g., media playback mode or telephony mode), 20 the electronic device may interpret the input differently, and perform an operation based on the determined mode (e.g., perform a telephony operation if the electronic device is in the telephony mode, or alternatively perform a media playback operation because the electronic device is in the telephony 25 mode).

FIG. 3 shows a flowchart of an illustrative process for interacting with an electronic device using a unique input mechanism in accordance with one embodiment of the invention. Process 300 begins at step 302. At step 304, the electronic device may monitor user interactions with the unique input mechanism. For example, electronic device 102 (FIG. 1) may monitor signals received from unique input mechanism 106 (FIG. 1) to monitor user interactions with unique input mechanism 106. At step 306, the electronic device may 35 receive an input with the unique input mechanism. For example, electronic device 102 may detect a signal (e.g., an electrical signal) provided by unique input mechanism 106.

At step 308, the electronic device may determine whether the input received at step 306 is a first input type. For example, 40 electronic device 102 may determine whether the signal received from unique input mechanism 106 corresponds to the signal of a first input type. For example, the first input type may be a single press of a button (e.g., unique input mechanism 106 is a single button). The signal received from the 45 button may be detected as a change in the state of the signal (e.g., from a high voltage to a low voltage signal), or a brief signal that may be transmitted while the button is pressed. If the electronic device determines that the input is the first input type, process 300 moves to step 310.

At step 310, the electronic device may determine whether it is playing media. For example, electronic device 102 may determine whether audio, video, or both is being provided to a user. If the electronic device determines that it is not playing media, process 300 moves to step 312. At step 312, the electronic device may begin to play media. For example, electronic device 102 may play the next media item on a playlist. As another example, the electronic device may play media from a particular folder or directory (e.g., a folder or directly previously selected using another input mechanism or input device). Process 300 then may move back to step 304, where user interactions with the unique input mechanism may be monitored.

If, at step 310, the electronic device instead determines that it is playing media, process 300 may move to step 314. At step 314, the electronic device may pause media that is being played. For example, electronic device 106 may pause media

6

by ceasing to provide audio, video or both, and by retaining an indication of the current playback position of the media. Process 300 may then move back to step 304, where user interactions with the unique input mechanism may be monitored

If, at step 308, the electronic device instead determines that the input is not the first input type, process 300 may move to step 316. At step 316, the electronic device may determine whether the input received at step 306 is a second input type. For example, electronic device 102 may determine whether the signal received from unique input mechanism 106 corresponds to the signal of a second input type. For example, the second input type may be two consecutive presses of a button (e.g., unique input mechanism 106 is a unique button). The signal received from the button may then be a two consecutive changes of the signal (e.g., from two high-to-low voltage changes), or a two consecutive brief signals that may be transmitted while the button is pressed. In some embodiments, electronic device 102 may recognize two consecutive presses of the button as the second signal (e.g., and not the first signal applied twice) only when the two presses are within a given time period (e.g., 1 or 2 seconds), only when each of the two presses last a given time period (e.g., within the 0.1 to 0.5 second window), or both. If the electronic device determines that the input is the second input type, process 300 may move to step 318.

At step 318, the electronic device may skip to the next media item available for playback. For example, electronic device 102 may skip to the next item in a playlist. As another example, electronic device 102 may skip to the next item in a folder or directory, or skip to the next folder or directory available in memory (e.g., to navigate memory of electronic device 102). In some embodiments, electronic device 102 may skip to the next media item whether a media item is being played or not. If a media item is currently played, electronic device 102 may play the next media item in response to the input of step 306. Similarly, if a media item is not currently played, electronic device 102 may not play the next media item in response to the input of step 306. Process 300 may then move back to step 304, where user interactions with the unique input mechanism may be monitored.

If, at step 316, the electronic device instead determines that the input is not the second input type, process 300 may move to step 320. At step 320, the electronic device may determine whether the input received at step 306 is a third input type. For example, electronic device 102 may determine whether the signal received from unique input device 106 corresponds to the signal of a third input type. For example, the third input type may be a single, extended press of a button (e.g., unique input mechanism 106 is a single button). The signal received from the button may be a single change of the signal that occurs over an extended period of time (e.g., a short circuit that lasts for at least a predetermined period of time), or a single, longer signal that may be transmitted while the button is pressed. In some embodiments, electronic device 102 may recognize the extended press of the button as the third signal (e.g., and not the first signal) only when the press lasts at least a predetermined time period (e.g., 2 or 3 seconds). If the electronic device determines that the input is not the third input type, process 300 moves to step 322.

At step 322, process 300 may terminate. In some embodiments, process 300 may return to step 304, where user interactions with the unique input mechanism may be monitored without performing any electronic device operation. In some embodiments, the electronic device may provide an indication of a misunderstood or mistaken input. For example, electronic device 102 may provide a visual indication (e.g., on

a display of or coupled with electronic device 102) or an audio indication (e.g., a sound or error message on audio speakers, such as a headset, of electronic device 102).

If, at step 320, the electronic device instead determines that the input is the third type, process 300 may move to step 324. 5 At step 324, the electronic device may determine whether it is performing a communications operation. For example, electronic device 102 may determine whether the user has initiated a call (e.g., a cellular telephone conversation, a video conference, or a voice over IP (VOIP) call). As another 10 example, electronic device 102 may determine whether the user is accessing or transmitting data over a communications network (e.g., surfing the Internet, transferring a file, sending e-mail, sending a text message or media message (SMS or MMS), or streaming or downloading data, for example 15 media, over the communications network). If the electronic device determines that it is not performing a communications operation, process 300 may move to step 326.

At step 326, the electronic device may initiate a communications operation. For example, electronic device 102 may 20 initiate a call, start a data transmission, or connect to a communications network (e.g., connect to the Internet). As another example, electronic device 102 may dial a number (e.g., redial the last number that was dialed or received by electronic device 102) or enter an address to access data 25 available from the address (e.g., enter a URL to access a webpage over the Internet).

As still another example, electronic device 102 may initiate a voice-activated or voice-controlled call. Electronic device 102, in response to receiving the user input, may monitor incoming audio (e.g., from a microphone) to identify a number to dial (e.g., identify a name associated with a number, or identify a number). If electronic device 102 cannot identify the number to dial, electronic device 102 may prompt the user to attempt again to identify the number, or may not perform any operation. Once electronic device 102 identifies the number, electronic device 102 may dial the identified number. In some embodiments, the user may similarly initiate any other suitable voice-activated or voice-controlled communications operation. As yet still another example, electronic device 102 may mute or unmute audio, change the volume of the communications operation, or perform any other suitable operation

In some embodiments, electronic device 102 may determine that it is receiving an incoming communications 45 request, such as for example an incoming telephone call. Electronic device 102 may then indicate the incoming communications request to the user, for example using an audio indication, a visual indication, or both. In response to receiving a user input of the third type while an incoming communications is requested, electronic device 102 may initiate a communication operation with the source of the incoming communication request (e.g., pick-up an incoming telephone call, stream requested media, or download a file). After step 326, process 300 may move back to step 304, where user 55 interactions with the unique input mechanism may be monitored.

If, at step 324, the electronic device instead determines that it is performing a communications operation, process 300 may move to step 328. At step 328, the electronic device may 60 terminate the ongoing communications operation. For example, electronic device 102 may hang-up a call (e.g., a cellular telephone or VOIP call, or a video conference), or cease transmitting or receiving data over a communications network (e.g., close data ports for surfing the Internet, transferring a file, sending e-mail, sending an SMS or MMS, or streaming or downloading data). Process 300 may then move

8

back to step 304, where user interactions with the unique input mechanism may be monitored.

In some embodiments, the electronic device may instead associate the same received inputs (e.g., the first, second and third inputs of process 300) with different communications or media playback operations based on the current mode of the electronic device. For example, if the electronic device is in a media playback mode, the electronic device may treat received inputs as instructions to perform media playback operations. For example, the electronic device may play/pause media in response to receiving a signal reflecting a single, short press of the button (the first input), skip to the next media item in response to receiving a signal reflecting two short presses of the button (the second input), and may fast-forward the current media item in response to receiving a signal reflecting a single, long press of the button (the third input).

Similarly, if the electronic device is in a telephony or communications mode (e.g., the electronic device is performing a communications operation), the electronic device may treat received inputs as instructions to perform communications operations. For example, the electronic device may initiate or terminate a communication (e.g., pick up or hang up a telephone call) in response to receiving a signal reflecting a single, short press of the button (the first input), and decline an incoming communications request (e.g., decline an incoming call) in response to receiving a signal reflecting a single, long press of the button (the third input). In some embodiments, the electronic device may perform different operations based on signals reflecting the same input based on the current communications or telephony operation being performed while in the communications mode. For example, while already performing a communications operation (e.g., on a telephone call), if a communications request is received (e.g., another call comes in on another line), the electronic device may switch to the other line and hold the initial communications operation in response to receiving a signal reflecting a single, short press of the button (the first input), and the electronic device may switch to the other line and terminate the initial communications operation in response to receiving a signal reflecting a single, long press of the button (the third input).

FIG. 4 shows a chart of illustrative associations of inputs provided using a single input mechanism and corresponding electronic device operations in accordance with one embodiment of the invention. The user inputs in chart 400 will be described as button presses. It will be understood, however, that any other input provided by a unique input mechanism may be used. Chart 400 may include column 402 of button presses, and column 404 of associated media playback operations (e.g., for use while in media playback mode), and column 406 of communications operations (e.g., for use while in communications mode). The first button press of column 402 may be single press 410. For example, the user may quickly press a dome switch, a bend switch, or any other suitable button or switch once. Single press 410 may be associated with start/stop operation 412 in a media playback mode. For example, in response to a single press of the button, the electronic device may start or stop playing back media (e.g., play media if it is currently stopped, or stop media if it is currently playing).

Single press 410 may be associated with initiate/terminate operation 414 in a communications mode. For example, in response to a single press of the button, if an incoming telephone call is being received, the call may be picked up, or if a call is ongoing, the call may be ended in response to a single press of the button. In addition, single press 410 may be

associated with hold and switch operation **416**. For example, in response to receiving an incoming telephone call during an ongoing telephone call, the ongoing telephone call may be placed on hold and the incoming telephone call may be picked up in response to a single press of the button. The user may 5 then switch back to the other call with subsequent single presses **410** of the button.

The second button press of column 402 may be double press 420. For example, the user may quickly press a dome switch, a bend switch, or any other suitable button or switch 10 twice consecutively. Double press 420 may be associated with next operation 422 in a media playback mode. For example, in response to a double press of the button, the electronic device may advance to the next media item (e.g., of a currently loaded playlist). The electronic device may or may 15 not play the next media item (e.g., play the next item if the current item is being played, and not play the next item if the current item is not being played).

In some embodiments, double press **420** may not be associated with any communications operation, for example to 20 avoid users accidentally terminating ongoing communications operations by failing to press the button twice at the correct speed or rate. Alternatively, a double press of the button may be associated with any suitable communications operation.

The third button press of column 402 may be extended press 430. For example, the user may press a dome switch, a bend switch, or any other suitable button or switch for a given time period (e.g., 3 seconds). Extended press 430 may be associated with fast-forward operation 432 in a media playback mode. For example, in response to a single, long press of the button, the electronic device may fast-forward the media item currently being played back. If the electronic device reaches the end of the media item, the electronic device may end the fast-forward operation (e.g., and play back the next sedia item), or start fast-forwarding the next media item).

Extended press **430** may be associated with terminate and switch operation **434** in a communications mode. For example, in response to a single, long press of the button, the electronic device may end an ongoing telephone call and 40 switch to an incoming call on another line. The extended press may be used, for example, while another call is on hold, to end the current call and return to the previous call (now on hold).

The above described embodiments of the present invention are presented for purposes of illustration and not of limitation, 45 and the present invention is limited only by the claims which follow.

What is claimed is:

- 1. A method comprising:
- receiving a user input with an input mechanism of an electronic device:
- in response to the receiving, determining with the electronic device a type of the received user input;
- in response to a determination that the received user input 55 is a first input type of a plurality of input types, determining with the electronic device whether the electronic device is currently in a first mode of the electronic device; and
- in response to a determination that the received user input 60 is a second input type of the plurality of input types, determining with the electronic device whether the electronic device is currently in a second mode of the electronic device.
- 2. The method of claim 1, wherein: the first mode comprises a media mode; and the second mode comprises a communications mode.

10

- 3. The method of claim 1, wherein the first input type and the second input type of the plurality of input types differ from one another only in one of a duration of a single contact of the input mechanism by a user and a quantity of consecutive contacts of the input mechanism by the user.
 - 4. The method of claim 1, wherein:

the input mechanism comprises a single button;

the first input type comprises a single short press of the single button; and

the second input type comprises a single long press of the single button.

- 5. The method of claim 1, wherein the determining whether the electronic device is currently in the first mode occurs only when the determined type of the received user input is the first input type.
- 6. The method of claim 5, wherein the determining whether the electronic device is currently in the second mode occurs only when the determined type of the received user input is the second input type.
- 7. The method of claim 1, wherein the determining with the electronic device whether the electronic device is currently in the first mode of the electronic device comprises determining with the electronic device whether the electronic device is currently performing a first operation of the first mode of the electronic device.
 - 8. The method of claim 7, wherein:

the first mode comprises a media mode; and

the first operation comprises a media playback operation.

9. The method of claim 8, wherein:

the determining with the electronic device whether the electronic device is currently in the second mode of the electronic device comprises determining with the electronic device whether the electronic device is currently performing a second operation of the second mode of the electronic device;

the second mode comprises a communications mode; and the second operation comprises at least one of an in-communication operation and receiving an incoming communication.

- 10. The method of claim 1, wherein the determining with the electronic device whether the electronic device is currently in the first mode of the electronic device comprises determining with the electronic device whether the electronic device is performing a first communications operation during the receiving.
 - 11. The method of claim 10, wherein:

50

- in response to a determination that the electronic device is performing the first communications operation during the receiving, the method further comprises terminating with the electronic device the first communications operation of the electronic device; and
- in response to a determination that the electronic device is not performing the first communications operation during the receiving, the method further comprises determining with the electronic device whether the electronic device is performing a first media operation.
- 12. The method of claim 11, wherein:
- in response to a determination that the electronic device is performing the first media operation during the receiving, the method further comprises manipulating with the electronic device the first media operation; and
- in response to a determination that the electronic device is not performing the first media operation during the receiving, the method further comprises initiating with the electronic device a second communications opera-

13. An electronic device comprising:

an input component configured to receive a user input; and a processor configured to:

determine a type of the received user input;

- in response to a determination that the received user ⁵ input is a first input type of a plurality of input types, determine whether the electronic device is operating in a first mode of the electronic device; and
- in response to a determination that the received user input is a second input type of the plurality of input types, determine whether the electronic device is operating in a second mode of the electronic device.
- 14. The electronic device of claim 13, wherein: the first mode comprises a media playback mode; and the second mode comprises a communications conduction mode.
- 15. The electronic device of claim 13, wherein the first input type and the second input type of the plurality of input types differ from one another only in one of a duration of a single contact of the input component by a user and a quantity of consecutive contacts of the input component by the user.
 - 16. The electronic device of claim 13, wherein:
 - the input component comprises a single button;
 - the first input type comprises a single short press of the single button; and
 - the second input type comprises a single long press of the single button.
- 17. The electronic device of claim 13, wherein the determining whether the electronic device is currently in the first

12

mode occurs only when the determined type of the received user input is the first input type.

- 18. The electronic device of claim 17, wherein the determining whether the electronic device is currently in the second mode occurs only when the determined type of the received user input is the second input type.
- 19. The electronic device of claim 13, wherein the processor is configured to determine whether the electronic device is operating in the first mode by determining whether the electronic device is performing a first communications operation.
 - 20. The electronic device of claim 19, wherein:
 - in response to a determination that the electronic device is performing the first communications operation, the processor is further configured to terminate the first communications operation; and
 - in response to a determination that the electronic device is not performing the first communications operation, the processor is further configured to determine whether the electronic device is performing a first media operation.
 - 21. The electronic device of claim 20, wherein:
 - in response to a determination that the electronic device is performing the first media operation, the processor is further configured to manipulate the first media operation; and
 - in response to a determination that the electronic device is not performing the first media operation, the electronic device is further configured to initiate a second communications operation.

* * * * *